Amendments to the Specification:

Please amend the paragraph on page 2, lines 6-14 as follows:

However, in the conventionally employed member using the alumina sintered body, etching by the halogen plasma cannot be prevented completely, and with an increase ~~of~~in the number of ~~usage~~usages, a surface of the member is corroded by the etching, and accordingly, it ~~has been~~becomes necessary to exchange the member. Moreover, the etched alumina becomes an impurity when being mixed into a semiconductor device, thus becoming a factor to inhibit performance of the device. Therefore, in order to lower maintenance ~~cost~~costs by reducing an exchange frequency of the member and to prevent the impurity from being mixed into the semiconductor device, it has been required to use a ceramic member having a higher corrosion resistance to the halogen plasma.

Please amend the paragraph on page 2, lines 15-21 as follows:

Meanwhile, as such a material having a high corrosion resistance to the halogen plasma, for example, YAG ($Y_3Al_5O_{12}$) is given. However, it is difficult to form such a large-sized sintered member of YAG as that of alumina. Therefore, recently, studies have been started on the use of a member improved in corrosion resistance, in which a surface of a base member composed of the alumina sintered body is coated with a YAG coating layer of an even thickness. ~~Extension of a~~A longer lifetime of the member can be expected as the YAG coating layer is thickened.

Please amend the paragraph on page 2, lines 22-26 as follows:

However, in general, the material resistant to the halogen plasma, such as YAG, has low toughness and low mechanical strength. Thus, a crack is often occurred when the coating layer is thick. Therefore, it is difficult to form such a thick coating layer without cracks. Accordingly, there are limitations on ~~extension of~~extending the lifetime of the member using the conventional YAG coating layer.

Please amend the paragraph on page 3, line 18 -- page 4, line 2 as follows:

A ceramic member according to a second aspect of the present invention is a ceramic member ~~is~~being usable in a state where at least a part thereof is exposed in a reactor in which halogen plasma is generated. The ceramic member includes a base member containing a first ceramic material as a main component, and a coating layer on a surface of the base member. The surface of the base member faces an inside of the reactor. The coating layer contains, as a main component, a second ceramic material more resistant to plasma etching than the first

ceramic material. Further, the ceramic member includes a thick portion in a region where an etching rate of the coating layer by the halogen plasma is locally high, and a thickness (tt) of the thick portion and a thickness (tn) of a normal thickness portion other than the thick portion satisfy the following expression (2):

$$tn < tt \leq 3 \times tn \quad \text{.....(2).}$$

Please amend the paragraph on page 5, lines 13-18 as follows:

FIGS. 1A and 1B are cross-sectional views showing partial structures of the reactor of the plasma etching apparatus. The reactor, ~~that~~which is hermetically sealable, is composed of a cylindrical chamber inner wall 20 and a dome-shaped chamber inner wall 10 provided thereon. On an outer circumference of the dome-shaped chamber inner wall 10, an electrode (high-frequency coil) 60 for generating the plasma is disposed.

Please amend the paragraph on page 5, lines 19-27 as follows:

On a lower side ~~of~~in the center in the reactor, a substrate 30 is fixed onto an electrostatic chuck 40. On the periphery of the electrostatic chuck 40, a circular ring member 50 is disposed for protecting sidewalls of the electrostatic chuck 40 and substrate 30 from plasma damage and corrosion gas. Note that a substrate heater or a susceptor is used in many cases instead of the electrostatic chuck 40. Moreover, the ring member 50 may be comprised not of a single member but of a plurality of members. Any of the chamber inner walls 10 and 20 and the ring member 50 corresponds to the ceramic member used in the state where at least a part thereof is exposed in the reactor where the halogen plasma is generated.

Please amend the paragraph on page 6, lines 5-12 as follows:

As shown in FIG. 1A, the chamber inner wall 10 according to this embodiment includes a base member 11 formed of a first ceramic material, and a coating layer 12 coating this base member 11. The coating layer 12 is formed of a second ceramic material having a higher corrosion resistance to the halogen plasma than the first ceramic material forming the base member 11. A main feature of the chamber inner wall 10 according to this embodiment is that the thickness of the coating layer 12 is not even but a thick portion 12B having a thick layer is formed locally on a portion where the damage due to the halogen plasma is large.

Please amend the paragraph on page 6, line 23 -- page 7, line 1 as follows:

FIG. 1B is a cross-sectional view of the chamber inner wall 10 from a viewpoint looking upward from a line 1b-1b of FIG. 1A. A cross section of the dome-shaped chamber

inner wall 10 has a substantially circular outer shape, and on a circumferential portion corresponding to a region where the coil-shaped electrode 60 is disposed, the thick portion 12B is formed ~~in width at~~ least wider in width than the width in which the electrode is disposed.

Please amend the paragraph on page 8, lines 10-19 as follows:

On the region where the etching rate by the halogen plasma is high, the thick portion 12B is thicker than the normal thickness portion 12A formed in the region other than the region is formed, thus making it possible to improve the lifetime of the chamber inner wall 10 as compared with the conventional one. On the other hand, when the thickness (tt) of the thick portion 12B exceeds a (Ec/En) time the thickness (tn) of the normal thickness portion 12A, the lifetime of the chamber inner wall 10 is determined in rate by the lifetime of the normal thickness portion 12A, and accordingly, an effect of extending the lifetime, which is brought by providing the thick portion 12B, disappears. Moreover, when the thick portion 12B is thickened to an unnecessary extent, the crack becomes prone to occur, which is not preferable.

Please amend the paragraph on page 9, line 26 -- page 10, line 20 as follows:

A first method for manufacturing the chamber inner wall according to this embodiment is a method of forming the coating layer by plasma flame spraying. In this method, first, a sintered body of the base member is prepared. Specifically, sintering aids, a binder, a curing agent and the like are added to alumina powder as the need arises, and varieties of foaming methods such as CIP (Cold Isostatic Pressing), slip casting and gel casting are used, thus the dome-shaped compact shown in FIGS. 1A and 1B is formed. Thereafter, this compact is heated in the atmosphere and subjected to a debinder process, followed by firing at approximately 1500°C to 1700°C, thus the base member 11 composed of the alumina sintered body and shown in FIGS. 1A and 1B is obtained. Next, YAG is evenly coated on the inner wall surface of the dome-shaped base member 11 by use of the plasma flame spraying. In the plasma flame spraying, for example, YAG plasma obtained by supplying YAG powder into a high-temperature flame containing a mixed gas of hydrogen and argon is sprayed onto the surface of the base member 11. First, a position of the base member 11 or YAG plasma is moved in a two-dimensional direction, and a coating layer is evenly formed over the entire surface of the base member 11. Subsequently, the plasma spraying is performed locally for the inner wall surface, and a thick portion is formed. Thereafter, the inner wall surface is fired at approximately 1500°C to 1700°C so as to form

the coating layer 12. In the case of forming the coating layer by use of the plasma flame spraying method, a position of the thick portion formed locally can be changed easily, and accordingly, this method can by easily applied to formation of coating layers of chamber inner walls in various shapes.

Please amend the paragraph on page 10, line 25 -- page 11, line 3 as follows:

First, a slurry of a material resistant to the halogen plasma, which serves as a raw material of the coating layer 12, and a slurry serving as a raw material of the base member 11 are prepared individually (S11 and S22). For example, powder of YAG, which serves as raw material powder, a dispersing medium, a binder and a dispersant are mixed by a trommel or the like, and a catalyst accelerating a hardening reaction is added thereto, thus the slurry of the material resistant to the halogen plasma is prepared.

Please amend the paragraph on page 11, lines 4-7 as follows:

Moreover, a powder of Al_2O_3, which serves as a raw material powder, a dispersing medium, a binder and a dispersant are mixed by use of a trammel or the like, and a catalyst accelerating a curing reaction is added thereto, thus the slurry of the raw material for the base member is prepared.